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POOLMAN, Jan [NL/BE]; GlaxoSmithKline Biologicals s.a., Rue de L'Institut 89, B-1330 Rixensart (BE).
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- Published:
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- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: VACCINE COMPOSITION

(57) Abstract: The present invention relates to vaccine compositions for the effective prevention or treatment of neisserial, preferably meningococcal, disease. The vaccines of the invention comprise a multivalent meningococcal bled composition comprising at least one bleb with homologous bactericidal activity which is derived from a meningococcal strain with a serosubtype that is prevalent in a country of use, and at least one bleb with heterologous bactericidal activity which is derived from a meningococcal strain which need not have a serosubtype that is prevalent in the country of use.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61K39/095

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

BIOSIS, EPO-Internal, WPI Data, EMBASE, PAJ, CHEM ABS Data, MEDLINE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 02 09643 A (GRANOFF DAN ;MOE GREGORY R (US); CHILDREN S HOSPITAL OAKLAND RE (U) 7 February 2002 (2002-02-07) cited in the application	1,12, 17-19
Y	claims 1,5,7,10,14-16,29 page 14, line 24 -page 15, line 12 page 18, line 31 -page 19, line 8 page 24, line 29-32 page 26, line 16-26 page 27, line 4-11 -& MOE-GR: "Differences in surface expression of NspA among Neisseria meningitidis group B strains" INFECTION AND IMMUNITY, vol. 67, no. 11, November 1999 (1999-11), pages 5664-5675, XP002266209 table 1 --- -/-	1-19

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

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04/02/2004

Name and mailing address of the ISA

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 International Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 01 09350 A (DALEMANS WILFRIED L J ;SMITHKLINE BEECHAM BIOLOG (BE); THIRY GEORG) 8 February 2001 (2001-02-08) cited in the application the whole document ---	1-19
Y	JODAR L ET AL: "Development of vaccines against meningococcal disease" LANCET, vol. 359, no. 9316, 27 April 2002 (2002-04-27), pages 1499-1508, XP004350750 ISSN: 0140-6736 abstract paragraph 'INTRODUCTION! page 1502, right-hand column, last paragraph -page 1504, right-hand column ---	1-19
A	TAPPERO JORDAN W ET AL: "Immunogenicity of 2 serogroup B outer-membrane protein meningococcal vaccines: A randomized controlled trial in Chile" JAMA (JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION), vol. 281, no. 16, 28 April 1999 (1999-04-28), pages 1520-1527, XP009022137 ISSN: 0098-7484 cited in the application the whole document ---	1-19
A	SACCHI CLAUDIO T ET AL: "Serosubtypes and PorA types of Neisseria meningitidis serogroup B isolated in Brazil during 1997-1998: Overview and implications for vaccine development" JOURNAL OF CLINICAL MICROBIOLOGY, vol. 39, no. 8, August 2001 (2001-08), pages 2897-2903, XP002263474 ISSN: 0095-1137 abstract ---	1-19
A	VAN DER VOORT EILEENE ROUPPE ET AL: "Immunogenicity studies with a genetically engineered hexavalent PorA and a wild-type meningococcal group B outer membrane vesicle vaccine in infant cynomolgus monkeys" VACCINE, vol. 18, no. 14, 31 January 2000 (2000-01-31), pages 1334-1343, XP002263475 ISSN: 0264-410X abstract --- -/--	1-19

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 03/06094

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>DE KLEIJN E D ET AL: "Immunogenicity and safety of a hexavalent meningococcal outer-membrane-vesicle vaccine in children of 2-3 and 7-8 years of age." VACCINE. ENGLAND 14 FEB 2000, vol. 18, no. 15, 14 February 2000 (2000-02-14), pages 1456-1466, XP002263476 ISSN: 0264-410X abstract</p>	1-19
A	<p>TONDELLA MARIA LUCIA C ET AL: "Distribution of Neisseria meningitidis serogroup B serosubtypes and serotypes circulating in the United States" JOURNAL OF CLINICAL MICROBIOLOGY, vol. 38, no. 9, September 2000 (2000-09), pages 3323-3328, XP002263477 ISSN: 0095-1137 abstract</p>	1-19
A	<p>MILAGRES LUCIMAR G ET AL: "Specificity of bactericidal antibody response to serogroup B meningococcal strains in Brazilian children after immunization with an outer membrane vaccine" INFECTION AND IMMUNITY, vol. 66, no. 10, October 1998 (1998-10), pages 4755-4761, XP002263478 ISSN: 0019-9567 abstract</p>	1-19
A	<p>POLLARD A J ET AL: "The meningococcus tamed?" ARCHIVES OF DISEASE IN CHILDHOOD, vol. 87, no. 1, July 2002 (2002-07), pages 13-17, XP002263479 ISSN: 0003-9888 the whole document</p>	1-19

INTERNATIONAL SEARCH REPORT

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Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
Although claim 18 is directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0209643	A	07-02-2002	AU 8088301 A	13-02-2002
			BR 0112928 A	26-08-2003
			CA 2416137 A1	07-02-2002
			EP 1322328 A2	02-07-2003
			WO 0209643 A2	07-02-2002
			US 2002110569 A1	15-08-2002
WO 0109350	A	08-02-2001	AU 6833600 A	19-02-2001
			BR 0012974 A	07-05-2002
			CA 2380840 A1	08-02-2001
			CN 1377415 T	30-10-2002
			CZ 20020403 A3	15-05-2002
			WO 0109350 A2	08-02-2001
			EP 1208214 A2	29-05-2002
			HU 0203056 A2	28-12-2002
			JP 2003506049 T	18-02-2003
			NO 20020506 A	02-04-2002
			TR 200200275 T2	21-05-2002
			TR 200202448 T2	21-01-2003